

QA16 – Energy Needs for Children with Spastic Cerebral Palsy

QUESTION:

A pediatrician recently referred a 2 year 9 month old girl with spastic cerebral palsy (CP) for nutrition intervention. His concern was her energy intake and growth. She is currently 22# and 34 ½". Her food records reveal she consumes approximately 600 - 800 kcal/day. Her growth on the CP Quad growth chart is at the 50th % for both height and weight, but I calculate her energy needs higher than what she is taking in. Do I recommend she take in more based on calculations? Or do I go by the growth chart? Her weight has been consistent for the past year based on the chart. Also, I am using the 1991 Nutrition Focus March/April issue on CP for calculation of energy needs. Are guidelines the same?

ANSWER:

Every child's nutrient needs must be assessed individually. It is important to take a number of factors into consideration when estimating energy needs: age, activity level, growth rate, and muscle tone contribute to a child's energy requirements. A child with spastic CP who is not ambulatory will likely have lower energy requirements than a child with spastic CP who is ambulatory. Equations have been published to estimate energy requirements.² These can be used as guidelines, but ultimately, the individual child's growth pattern over time will provide more clues about actual energy needs.

Growth charts are available for girls and boys with quadriplegia associated with cerebral palsy. These charts include data from 360 children and should be used only with children who have spastic quadriplegia. There is some controversy over the use of these charts because of differences within the study population. These growth charts should be used with NCHS growth charts to provide a more complete picture of the child's growth.

The child described in the question is plotted below the 5th percentile for age (on the NCHS charts) for length and for weight. Weight for length is also less than the 5th percentile. Because of the decreased muscle mass associated with quadriplegic CP, we might not expect her weight for length to be in the "upper percentiles," but weight for length less than the 5th percentile is likely indicative of inadequate fat and muscle stores. It is likely that her energy needs are not being met by her current intake. It would be reasonable to use published equations to estimate energy needs, then monitor the child's growth to "fine tune" the estimate. Thus, if she is not ambulatory, her energy needs could be estimated ~11.1 kcal/cm (1000 kcals/d). Or, if she is ambulatory, 13.9 kcal/cm (1200 kcal/d) could be used as a starting point.

References:

- 1) Cully JH and Middleton TO. Caloric Requirements of Mentally Retarded Children with and without Motor Dysfunction. J Pediatr. 1969; 75:380.
- 2) Krick et al. A Proposed Formula for Calculating Energy Needs of Children with Cerebral Palsy. Develop Med Child Neurol 34: 481-7, 1992.

- 3) Krick J et al. Pattern of Growth in Children with Cerebral Palsy. J Am Diet Assoc. 1996;96:680.
- 4) Shaddix TE. Nutritional Implications in Children with Cerebral Palsy. NUTRITION FOCUS for Children with Special Health Care Needs, 6(2), 1991.
- 5) Williams CP, ed. Pediatric Manual of Clinical Dietetics. The American Dietetic Association. 1998.